



# MAGAZINE

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FRONT COVER: *Rievaulx Abbey,*  
*Yorkshire, photo by Ivor Ashmore*

OUR CONTRIBUTORS

IVOR ASHMORE is a specialist in colour photography whose first contribution to the Magazine was some beautiful pictures of tropical fish published in October last year. He served with the R.A.F. during the war and specialised in photo reconnaissance. He now runs a photographic studio in the West End of London.

MARIE BRADSHAW and MARGARET JAMES are close friends who both work in the Hillhouse factory of General Chemicals Division. Marie is a comptometer operator in the Accounts Department; Margaret a clerk in Distribution Department. They both like writing and this is their first article to be published.

MAUREEN HARDING left I.C.I. in June last year after two years at Head Office in charge of Work Study Charting Section. She was noted there for her liveliness of humour and her gift of extemporising a cartoon in a few minutes. She studied art at Rotherham Art School in Yorkshire.

Wilton's Fifth Birthday

By the Editor

In five years Wilton has grown from a grandiose plan to a spacious and flourishing chemical works with a turnover of many millions a year. Including the oil cracker there are now no less than thirteen plants in operation and six more are likely to be working within two years. Here to commemorate Wilton's fifth birthday is a review of progress to date, lavishly illustrated with some special colour photographs.

Photographs by Ivor Ashmore

“THE orchestra is only just tuning up” said Lord McGowan. That was five years ago—14th September 1949 to be exact—and the occasion was the official opening of Wilton Works.

It was an apt phrase. For just as each instrument in an orchestra plays a part related to the others, so the plants sited at Wilton are integrated in their dependence one with another, many of them by virtue of the fact that they use the petroleum chemicals resulting from the cracking of oil at Wilton. And if the orchestra five years ago was only just tuning up, today the symphony has begun.

Lord McGowan's words that day represented the fruit of six years of planning beginning in 1943. In that sense Wilton is now eleven years old.

1943 was none too early to make post-war plans. It was obvious that as soon as the war ended almost every I.C.I. Division would be pressing for authority to erect new plant since capital expenditure had ceased during the war except for vital war production. Not only were the fruits of war-time research and experience waiting to be exploited, but old and trusted lines of production would need to be modernised and expanded to cope with post-war demand. Would each Division

build its own plants in or near the established centres of production? Or should a new industrial site be acquired where all Divisions would be expected to erect their new factories?

The answer to these questions was Wilton. The site for this great industrial enterprise—then spoken of as a £10m. project and now in terms of anything up to £100m.—was the flat fields of the Lowther Estate flanking the

south bank of the Tees and more or less opposite Billingham. Looking down on this farmland from the northern slopes of the Cleveland Hills was one of those castellated structures of the Victorian era whose architecture was stamped Gothic Revival. Here the Lowther family used to go in the summer, only to flee again before the chills of winter which coal fires in the massive Victorian grates could not repel even if staff could be found to cope with the long corridors and the rambling servants' quarters.

Today these same fields—350 acres of them out of 2000 acquired—are the site of a post-war chemical works whose turnover is many millions of pounds a year; while the castle, redecorated and centrally heated, provides offices for some of the men and women who staff the headquarters of this huge industrial unit and a guest house where visitors can be entertained.

The chief products of Wilton—to make a short and only partially accurate statement—can be classified as plastics and fibres from petroleum. They are made in post-war plant which has involved a large expenditure of money. By the time this article is read, no less than £36m. of capital will have been spent at Wilton; in fact capital expenditure today is running at the rate of £3½m. a month.

The modern chemical plant has a very high capital



NIGHT TIME AT OLEFINE WORKS. This oil-cracking plant is constructed to work in the open air and hence is a blaze of light at night.





MAIN AVENUE OF OLEFINE WORKS. On the left is the oil cracker and on the right a plant under construction for manufacture of paraxylene.

gearing in relation to labour. At Wilton it is reckoned that for every worker permanently employed the investment in plant and machinery is of the order of £10,000. Wilton indeed can fairly claim to be an expression of a new era in industrial chemistry—an era characterised by high capitalisation and by the replacement of coal by petroleum as a source of carbon. The linchpin of Wilton is in fact the cracking plant.

Every year 250,000 tons of refined oil something like paraffin, brought direct by ocean tanker, are cracked at Wilton. Cracking is the technician's jargon for the breakdown of petroleum into chemicals different from those originally present in the oil.

A cracker is quite different from an oil refinery. In broad terms refining means merely the division by physical means of the oil into components which are subsequently

purified. But in cracking the actual molecular structures of the constituents of the oil are attacked.

Roughly, what happens is this. The oil is vaporised and mixed with high-temperature steam, a process which cracks a part of the oil into gas. As a by-product crude motor spirit is produced which is pumped across through the ten-mile-long "link" to Billingham, where it is blended with other motor spirit produced there by the hydrogenation of creosote. Heavy oil is also produced and this is used to fire the cracker furnaces. There is then left a mixture of gases which are liquefied in a kind of enormous refrigerator and separated from each other by distillation. The chief chemicals so produced are ethylene and propylene gas which are used in the manufacture of a big range of chemical products, including complex synthetic polymers for plastics and fibres.

As might be imagined, the use of these products from the cracker is a matter in which many I.C.I. Divisions are interested. It is, therefore, worth pausing a moment to consider how these different interests are organised and integrated.

### Company Policy

In the first place, it is Company policy that whenever a Division has an important plan for a new product or an extension, it first considers the desirability of locating the plant at Wilton. This has led to the manufacture at Wilton of several very different products, some of which have no connection at all with the cracker.

From the technical and commercial aspects, all these different plants at Wilton are run entirely by their own Divisions, who look to the Wilton management for the provision of the many services necessary for the operation of the factory. By services is meant not only the steam, electricity, water and drainage required directly for operation of the plants, but the general factory services such as workshops, transport, accountancy, welfare, medical, recreation and so on. Wilton also organises the recruitment of all labour for the site, and arranges the construction work both for Wilton services installations and for Division plants. In providing these services the Wilton management is headed by a body known as the Wilton Council, composed of the chairmen of the Divisions



The centre of Wilton Works, called Piccadilly Circus, as it was five years ago

interested, plus four representatives from the Wilton permanent staff.

Many of the products made at Wilton are extremely complicated chemically. Take for example 'Perspex' sheet. The beginning of 'Perspex' can be said to be propylene gas from the cracker. This is piped across to Billingham through the ten-mile "link" tunnelling under the Tees. At Billingham it is reacted with steam under pressure in a redundant part of the oil works which has been adapted for the purpose. This gives a chemical called isopropyl alcohol which is then converted into acetone by a catalytic process in a new specially erected plant at Billingham. The next step is for this acetone to be piped to the General Chemicals Division plant at Billingham, where it is chemically linked with several other products and turned into the complex chemical called methyl methacrylate monomer. This is now the material from which 'Perspex' is made and it goes back again to Wilton in tankers for final treatment.

### Complex Organisation

In citing the case of 'Perspex' one has perhaps chosen one of the more complicated examples, but it is a striking illustration of how nowadays the making of organic compounds far transcends Divisional boundaries. For most of the other Wilton products quite such a long geographical journey is unnecessary.

There are today at Wilton no less than thirteen plants in operation, and another six will probably be working in the next year or two. One of the oldest of the Wilton plants makes phenol formaldehyde moulding powders and is operated by Plastics Division. This Division operates two other plants making urea formaldehyde

(Text continued on page 299, photographs on page 302)



# CASE-HARDENER

CYANIDE, quite apart from the use it is put to in detective stories, is a hard-worked chemical. Up and down the world it is used for all kinds of things: gassing rabbits, winning gold from ores, electro-plating and making dyestuffs intermediates are a few of them. But the application of cyanide which most closely affects the man in the street is its use in giving mild steels a hard outer "case."

A world without case-hardening would be hard indeed. Tin-openers would bend and buckle, lawn-mowers would lose their cutting edges in a week, motor-car pistons would break from their connecting rods, sewing machines and bicycles would slowly grind to a stop as their bearings wore.

These are a few of the everyday things which need both toughness to withstand shocks and strains, and hardness to withstand wear and abrasion. Mild steel alone is tough, but not hard. Hardened high-carbon steel is hard, but brittle rather than tough. What is needed is a combination of both, and this is where cyanide, and the Heat Treatment Section of General Chemicals Division's Technical Service Department, come into the picture. The section maintains heat-treatment depots at Oldbury, London and Glasgow, where work is carried out for customers such as motor manufacturers. It also designs and builds furnaces for manufacturers to use themselves, and supplies them with cyanide and other salts.

"Take gudgeon pins," they said to me at Oldbury when I asked them to explain case-hardening: "the pins that hold pistons to their connecting rods. They must be tough, to stand up to the shocks and buffeting they get. But they must also be hard, to withstand constant wear on their outer surfaces. Case-hardening is the answer."

In the heat-treatment shop I saw some gudgeon pins acquiring their hard outer case. Jack Radford, one of the processmen, had a bunch of them suspended from a hoist over a large cauldron. Every now and then the grey crust on the surface of the cauldron's contents was broken by a bubble, revealing a mass of red-hot—almost white-hot—liquid.

"That's sodium cyanide in there," said John. "Its temperature is 950° C. Now, mind yourself as I lower this lot into it." We stood behind the furnace canopy as the charge was lowered into the melt. It went in quietly, having been thoroughly dried. Had care not been taken with the pre-heating we should have needed the canopy to protect us from a spurt of salt.

While we waited for the pins to "cook," the experts explained what was happening. The carbon in the sodium cyanide was "soaking" into the comparatively low carbon steel

of the gudgeon pins. This would give them a fine casing (about 0.030 in. in depth) of high-carbon steel without affecting the toughness beneath. After quenching in water this case would be extremely hard.

"Why do we use cyanide? For several reasons, but chiefly because it contains plenty of carbon which it will give up readily under heat. Yet apart from that it is stable when heated and won't adversely affect the metal."

The old method of case-hardening, which is still used in places, was to "cook" the steel in red-hot charcoal. The effect was the same, but it was difficult to heat the parts uniformly. Packing the parts carefully in charcoal and then unpacking them took time. A bath of sodium cyanide, on the other hand, envelops the parts completely. They merely have to be immersed, brought to the temperature of the bath, soaked for a time, then removed and quenched. The bath is then ready to receive another batch.

Jack Radford was ready now to haul out his gudgeon pins. I asked him at this point how he knew when they were ready. "The times necessary for any particular depth of case have all been worked out," he said, "so that we can gauge to a few minutes just how long one sort of part will need. Of course, these pins are getting a fairly deep case—about  $\frac{1}{32}$  in. Some parts need only a hard skin and are taken out of the salt again as soon as they have heated up to the correct temperature."

Although he was working the casehardening process today, Jack told me, a large proportion of his time was spent on heat treatment of high-speed steel. This does not need case-hardening, but is hardened by a cycle of heating and cooling. After hardening it does not soften appreciably even when reheated to a dull red heat, a very necessary property in cutting tools, which must retain a sharp edge even when they become heated in use. These need "neutral" baths, which put no carbon into the steel but protect it from any oxidation of the surface layers.

Jack showed me a typical batch of tools for treatment: two-foot-long reamers laced with intricate cutting surfaces.

Cutting tools such as these may be worth £100 apiece, while press tools and plastics moulds may be worth several times as much. The furnaces are electrically heated (in contrast to the case-hardening baths, which are heated by gas), and if the tools under treatment are allowed to touch the electrodes they are ruined for good. For that matter the whole process must be scrupulously carried out, for long tools such as reamers take a perverse delight, it seems, in becoming distorted if they are subjected to a higher temperature or quicker cooling than prescribed.

M.J.D.

Jack Radford





# Information Notes

## FILMS FOR THE FEW

By E. Mitchell Greenwood (I.C.I. Film Librarian)

*There is today a growing public interested in films for private showing. To these bodies, ranging from the Royal Society to the Women's Institute, I.C.I. distributes films free of charge. In the busy season over a thousand loans a month will be made from a library of 90 different films, of which the most popular is Colour, shown in the course of eleven years to many millions of people throughout the world.*

IN spite of television, long summer evenings, the high cost of living and many other reasons, 25 million people still go to the cinema every week in Britain. These people make up what the trade calls the theatrical public. They pay their 2s. 3d. (of which 10½d. is entertainment tax), and the film they chiefly see is 35 mm. in width, the standard gauge for commercial films.

But there is also another public—the non-theatrical—which sees films 16 mm. wide, films not made primarily for direct financial return. This public includes film societies, universities, schools, technical bodies, professional associations—everything, in fact, from the Royal Society to the Women's Institute. Not for these people are plush seats, tinted curtains or choc-ices of the cinemas: they see their films the hard way, in village halls, schoolrooms, canteens and barns.

Many of the suppliers of these non-theatrical films are industrial organisations who loan films free of charge. Among these films are those distributed by the I.C.I. Film Library.

I.C.I. started its organised distribution of films about eight years ago. Today the catalogue of the I.C.I. Film Library lists over 90 films, and during the busy season well over 1000 loans per month are made. Even during the summer months (if the holiday month of August is excepted) the monthly total rarely falls below 600. These loans are not made to private individuals but to audience groups throughout the country. In terms of audience numbers, schools predominate, with university colleges a close second.

But numbers do not tell the whole story: many of the films made by I.C.I. are of a specialised nature and deliberately intended for restricted audiences. This is particularly true of the films supplied to the medical profession. Conversely, films of a general nature with a wider appeal will often be shown to a very large audience, sometimes over the 1000 mark. When it is considered that a loan usually results in more than one showing—possibly half a dozen or so—it can be reasonably assumed that I.C.I. films have a yearly viewing figure of more than three-quarters of a million. Moreover, this does not take into account the many copies of I.C.I. films which are distributed apart from the film library's lending scheme and swell the final total to somewhere near the million mark.

Often people take the trouble to write and tell us how much they like our films. There is only space to quote one such letter. It is from a hospital training school and, referring to the medical training film *Control of Infection in Surgical Dressings*, says: "Sister tells us that your firm lent the film for our instruction, and we are grateful for such generosity. Pictures are such a great help in understanding the fundamentals of a subject, and these were so good that we hope to see them again." Six signatures completed this particular appreciation.

Many large commercial and industrial undertakings, including I.C.I., regularly distribute films overseas. Some of these have been supplied with foreign commentaries, a practice which will undoubtedly receive considerable stimulus as a result of a new development which enables a sound commentary to be recorded simply by speaking into a microphone while watching the pictures. Moreover, this leaves the original sound track still available, so that the film is then bilingual and has the further advantage that the added commentary can be removed and replaced by alternatives as often as desired.

The overseas distribution of I.C.I. films is very considerable, and the Film Library has already sent abroad some 3000 copies to some 80 countries. This has been done despite the many regulations involved. Moreover, some countries add censorship as an extra complication. India is one of these and demands a written version of what is said in the film. In the case of *Feature Story* this was supplied, but the censorship authorities also demanded a copy of the song which is sung in the Synthonia Club scene. Enquiry to the film producer elicited the reply that this was extemporised. The ever-useful shorthand typist transcribed this from the film, and after reading

Honey, my baby,  
It's past your bedtime.  
The water is waiting for your bathtime;  
Your nightie is warming by the fire;  
Your head is beginning to nod . . .

the censorship authorities decided that it was quite suitable for Indian ears.

A further overseas distribution is also provided by loans to



*The I.C.I. Film Library, which distributes I.C.I. films with a yearly viewing figure of three-quarters of a million people*

organisations who borrow copies for use by their lecturers abroad. Examples are the World Health Organisation, the British Council, and the United Kingdom Dairy Association.

What of the films themselves? The most widely distributed documentary film in the World, *Colour*, was sponsored by I.C.I. Made eleven years ago, and about colour as its name implies, it includes a considerable section devoted to the making of dyes. Many of the scenes were shot at Dyestuffs Division. The cameraman was Jack Cardiff, who is today one of the world's leading cameramen and whose name is frequently seen on the credit titles of Technicolor theatrical films, including *Red Shoes* and latterly *The Barefoot Contessa*.

During the eleven years since it was made *Colour* has been shown in nearly every cinema in this country. Moreover, its non-theatrical distribution is equally remarkable, and several hundred 16 mm. copies have been made. *Colour* is still even today the most popular of all the I.C.I. Film Library films, and although there are over fifty copies in the Lending Library, in the peak period many applicants have to be told "Sorry, not available." Apart from the lending library there are copies of this film held outside under the paradoxical term "permanent loan." Some have been supplied for use within I.C.I., while

others are with scientific, industrial and Government bodies.

The number of people who have seen this film is incalculable, but the total must be many millions. There are foreign versions in Brazilian-Portuguese, Colombian-Spanish, Italian, Persian, Rumanian, Dutch, German and Greek.

Of the specialised medical films *Life Cycle of the Malaria Parasite* is probably the most widely distributed to date. There are already 136 copies, including Spanish, Portuguese and French versions. This is a Technicolor film and shows, by animated drawings, how the malaria parasite develops in both the human and the mosquito.

*The Technique of Sampling* is an example of a non-medical specialised film and was originally made for showing at the International Congress of Analytical Chemists at Oxford, a gathering which was attended by delegates from all over the world. It shows the theory of sample taking and emphasises the importance of this branch of analytical chemistry.

One of the most surprising aspects of this non-theatrical film showing is the way in which it continues to expand. At present the film library catalogue goes out to 6000 addresses. Every year bookings increase—a tribute indeed to this form of public relations.



# A NEW TECHNIQUE OF PLANT PROPAGATION

By E. R. Webber (Reprinted from *Discovery*)

*The technique of propagating shrubs by means of layering recently took a big step forward with the introduction of polythene bags. These bags provide a means whereby shrubs can be layered away from the ground; rooting, fostered by hormone preparations, taking place in soil kept damp by sphagnum moss and the polythene wrapping. Here is an account of this development.*

NEW uses for plastic materials are constantly being found and it was to be expected that they would eventually find their way into the horticultural world. In the United States their use in this sphere is becoming widespread, and there are signs that a keen interest in this kind of application has been aroused in Britain.

The particular plastic material which has become popular among horticulturists is polythene. This transparent plastic has many excellent properties: for example, its moisture absorption is virtually nil; it shows a high resistance to attack by chemicals; it is strong and has good lasting properties.

The best-known horticultural use of polythene is in the practice of air-layering for woody plants. This technique of propagation was known thousands of years ago to the Chinese, but little has been heard of it recently in the Western world.

It consists of making a cut on the stem of a plant and wrapping moist moss or soil round the cut in order to induce roots to form. The difficulty has been to keep the wrapping material moist.

Paper, cloth and rubber wrappings have been tried, but none has proved very successful, with the result that when the technique has been used in warm glasshouses it has been necessary to water several times a day to get successful results.

In 1947 Colonel Grove in Florida found that the new polythene film was ideal for keeping the moisture in. In 1950 this idea was taken up by John Creech of the U.S. Department of Agriculture, who successfully propagated rhododendrons by air-layering when he used this plastic film.

The technique was next taken up by the Arnold Arboretum

in Massachusetts, which has published an account of the procedure which was found effective. This starts with the making of a 2 in. cut upwards on the young twig; alternatively a complete ring of bark half an inch wide can be removed. The cut surfaces are treated with one of the hormone preparations which promote root growth. Moist sphagnum moss is then packed between the cut surfaces and all round the cut. The polythene film is then wrapped round the moss and fastened with thick adhesive tape. It is essential that no hole be left through which moisture can evaporate.

If properly done, this air layer will remain moist for several months until rooting takes place. When the roots show through the film, the branch is severed beneath the ball of moss and planted.

Most of the experiments were made with plants which are difficult to root, the purpose being to find out if some of them would respond to the new method of air-layering, which would save the time and trouble of grafting. Most of the layers were put on in either late April or July, and were removed in October. Even with most of the failures the

stems were well calloused, and even here good results might be achieved with a little more skill in application of the technique.

In England similar work has been done by the Royal Horticultural Society at Wisley and by Plant Protection at their Fernhurst research station. The Royal Horticultural Society is reported to have had a considerable degree of success during the past two years, but at the moment of writing it has not published a detailed report of the results. At Fernhurst polythene film has been used for the aerial layering of semi-woody greenhouse plants; but although rooting took place quickly



*A layer from a magnolia tree taking root away from the ground in a polythene bag*

with some of these the experiments were not considered wholly successful.

Following the same principle, plastic film has been used for the more common methods of plant propagation. Once again most of the published material is American.

Cuttings are prepared in the usual way: they are dipped, if desired, into a hormone-rooting powder and then inserted into pots or wooden boxes containing sand and peat moss. The pots or boxes are then completely enveloped with a plastic sheet, which is secured in order to prevent any moisture escaping. With the moisture trapped within the "tent" there is no need for watering, and the cuttings can be left to root undisturbed. The tent may be kept indoors in bright light, or it can be kept out of doors in a partially shaded place during warm weather.

Another method depends upon wrapping each cutting separately in a piece of plastic film. In this case a little sphagnum moss is taken, squeezed to remove excess moisture and placed at the centre of a square of film. The cutting, after treatment with hormone powder, is inserted in the lump of moss. The square of film is then wrapped round to make a bag, which is secured with a rubber band. This method has been tried both indoors and out of doors, but under either condition the cuttings need to be kept out of bright sunshine.

The particular advantage of polythene is its transparency which makes it possible to keep a watch on the progress of root formation on cuttings. One can see when the cuttings

have made the desired amount of root growth; the film is then removed, and the cuttings are planted in the usual way.

In Britain, Plant Protection have tried using polythene sheeting to make a growing-bed for tomatoes with a constant-level water table. The bed was laid down in a trench dug on a glasshouse border; a layer of sand was put in the trench and the sheeting laid on this. The edges of the sheeting at the surface were protected by a rough wooden frame. A layer of small shingle was put on the bottom of the bed on top of the sheeting and, in order that water would flow easily along the length of the bed, tiled drains cut in half were inverted along the centre of the bed so that they were half buried in the shingle. The bed was then filled up with ordinary border soil containing the same amount of fertilizer as the rest of the house had received. The plants were set out and the bottom of the bed was filled with water which rose very satisfactorily through the seven inches of soil above the gravel, so that no ball watering of the plants was at any time necessary.

Mechanically this arrangement proved satisfactory; the plants grew away more rapidly than a set of controls but they fell away severely later, possibly because of lack of nutrients in the small volume of soil enclosed in the constant-level bed.

Many people worry about their pot plants when they go away on holiday. Polythene film suggests an answer to these worries. If a piece of this film is wrapped round the entire pot after it has been thoroughly watered it should remain moist for two or three weeks.

## WILTON'S FIFTH BIRTHDAY (continued from page 293)

moulding powders and 'Perspex' sheet. Dyestuffs Division makes 'Lissapol' N detergent and alpha-naphthylamine, and is just starting up its new phthalic anhydride plant. General Chemicals Division makes chlorine and caustic soda from brine pumped across from their Durham brinewells. Alkali Division makes polythene from the ethylene provided by the cracker in a plant which has been constantly expanded—and may very probably expand still further—to meet the ever-growing requirements of the world for this versatile plastic.

Billingham Division, apart from operating the cracker, has four plants at Wilton whose chief function is that they provide the necessary chemicals for the complicated compounds made by other Divisions. They make, for instance, formaldehyde, part of which is passed over to the Plastics Division for the making of its plastics; and they make ethylene oxide from the cracker's ethylene. Part of this ethylene oxide goes to the Dyestuffs Division for the making of 'Lissapol' N and part is further converted into glycol. Glycol is well known to most people as antifreeze for motor cars and aeroplanes. But it also happens to be one of the raw materials for what is probably going to be the biggest and most important of all the plants at Wilton, namely 'Terylene.'

Today the first plant in the 'Terylene' project is nearing completion and the construction of the second unit is well under way. Moreover, the precaution has been taken of keeping ample space for further developments alongside the present

two 'Terylene' plants under construction. Together these two plants are expected to turn out more than 10,000 tons of 'Terylene' fibre per annum when in full production.

Perhaps 10,000 tons of 'Terylene' does not sound a great deal. After all, it is only about 1% of the total of raw materials used every year by the textile industry in Britain. But another way of looking at this figure is to remember that 1 lb. weight of 'Terylene' polymer accounts for about 100 miles of fine yarn. To talk of 10,000 tons of 'Terylene' means therefore a very large factory indeed having many hundreds of thousands of spindles.

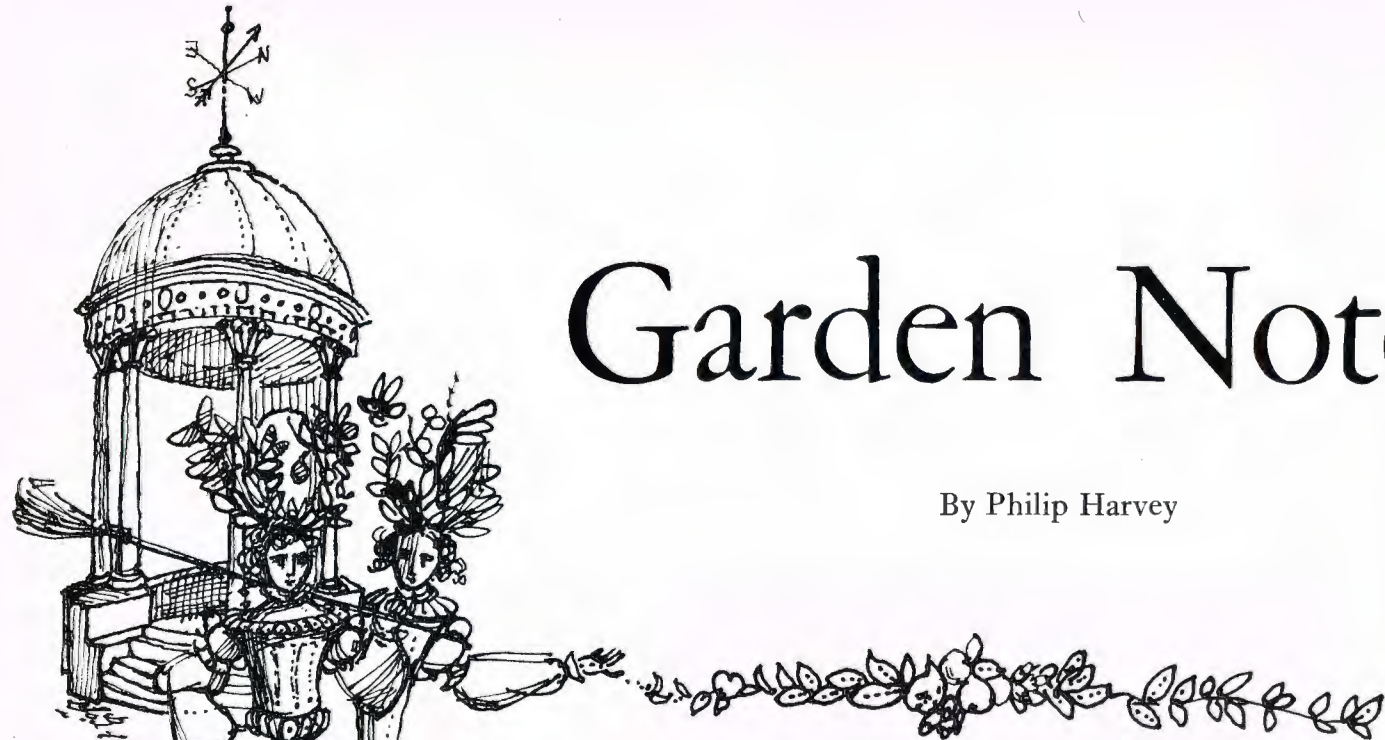
But how big is Wilton likely to grow? The Company's policy on this has not yet been disclosed, but certain far-reaching plans for further extension have already been announced. The cracker unit, for instance, is to be doubled, and this work is expected to be completed within three years. There is to be a plant for the manufacture of a range of plastics made from butadiene, which itself is one of the range of petroleum chemicals from the cracker. More no doubt will come along. And what is to be the limit?

This is a delicate question and one no doubt which the Board of I.C.I. will be keeping increasingly in mind. There are many points which will have been considered. One is the availability of suitable water; another is the life of the Durham coalfields; a third is whether a unit like Wilton could not perhaps ultimately, unless checked, grow so large as to be cumbersome and impersonal in its management.



# Garden Notes

By Philip Harvey



**I**f you have taken over a new garden or allotment recently broken up from grass, it is quite likely that the land will be infested with wireworms. Heavy soils usually contain a higher wireworm population than light land, though these pests may be found almost anywhere. They are usually less prevalent in the north and in Scotland, being more abundant in the eastern and south-eastern counties.

The maximum damage occurs from March to the end of May and again in early autumn. October is therefore a good month to suppress these creatures.

Are you quite sure you can identify a wireworm correctly? Wireworms are the larvae of click beetles or "skip-jacks," about three-quarters of an inch long when fully grown and yellow or yellowish brown, with hard, smooth skins. Do not confuse them with centipedes, which have one pair of legs on all body segments, whereas wireworms have three pairs of short legs on the first three segments. Centipedes are beneficial insects, as they prey on small slugs, snails and other pests.

**W**ireworms are chiefly soil pests, feeding on underground tubers, bulbs, corms, roots and stems. They also occasionally tunnel up the stems of chrysanthemums, carnations and beans. Seeds can be attacked both before and after germination. Small seedlings may be destroyed outright, larger plants being frequently riddled with tunnels.

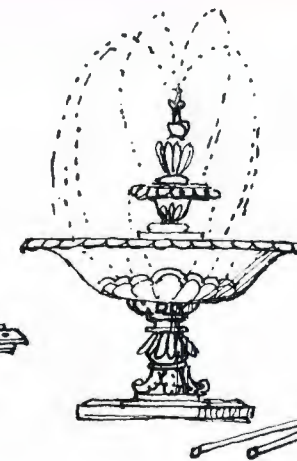
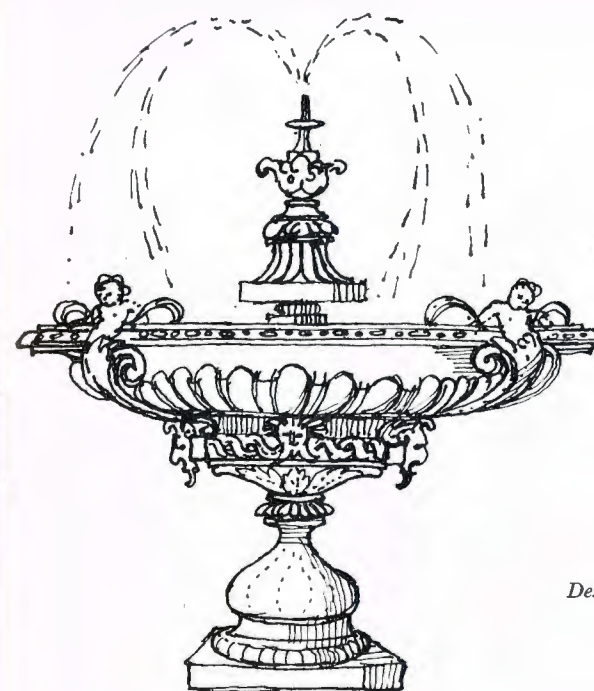
Older vegetable plants, however, are rarely seriously damaged. Growth usually suffers a severe check—if you take up a suspected plant, the pests will probably be found clustered round the base.

The maximum damage is probably caused to potato tubers, but many other vegetables are markedly susceptible, notably carrots, beetroot, lettuces, peas, onions, brassicas.

**I** have sometimes read well-meant advice to grow crops that are fairly resistant to wireworm for one year, for example parsnips and spinach. Both vegetables, I suppose, are highly nutritious, but I am sure I am not alone in maintaining that they are tasteless and uninteresting. As I shall mention later, you can come to grips with these pests without spoiling your palate.

Wireworms feed for a period of four to five years, and it is therefore very important to keep their numbers down in the flower garden. Carnations, chrysanthemums, dahlias, delphiniums, lupins and Michaelmas daisies are favourite targets. They also feed on strawberries.

Wireworms dislike soil movement, and hoeing is a partial deterrent. Severe winter weather makes little or no difference, as they pass deeper into the ground. Baiting with pieces of carrot, beetroot, etc., on a skewer buried in the soil is a popular remedy but is obviously impracticable where infestations are heavy. 'Gammexane' gamma BHC is now recognised the world over as the most



Design by A. Southcott

effective answer to the wireworm problem, and the most up-to-date treatment is to rake in the new 'Abol' Gamma Dust now or in early spring. As more damage often occurs the second year after land has been broken up from grass, it is usually best to repeat the treatment for two successive years.

Fortunately wireworms are not attracted by rose bushes, whether newly planted or old-established specimens. If you contemplate putting in some new trees this autumn, now is the time to prepare the soil. Perhaps you feel you cannot be bothered to go to all the trouble reputedly necessary to get the ground into the right condition. It is, however, well worth while giving careful attention to this matter.

**W**hen I came to my new garden last March there was one portion of ground that had been manured annually. (Last year it carried brassicas and root crops.) The soil was dug to a depth of one spit and all weeds were removed. Due to continuous heavy rains it could only be dug at irregular intervals, and we did not finish planting the rose trees on this plot until mid-April.

Without exception all the 200 roses have gone ahead splendidly. Undoubtedly frequent rain has stimulated growth, but I am certain that previous manuring and regular cultivation of the soil, combined with the digging over immediately before planting, are the main reasons for success.

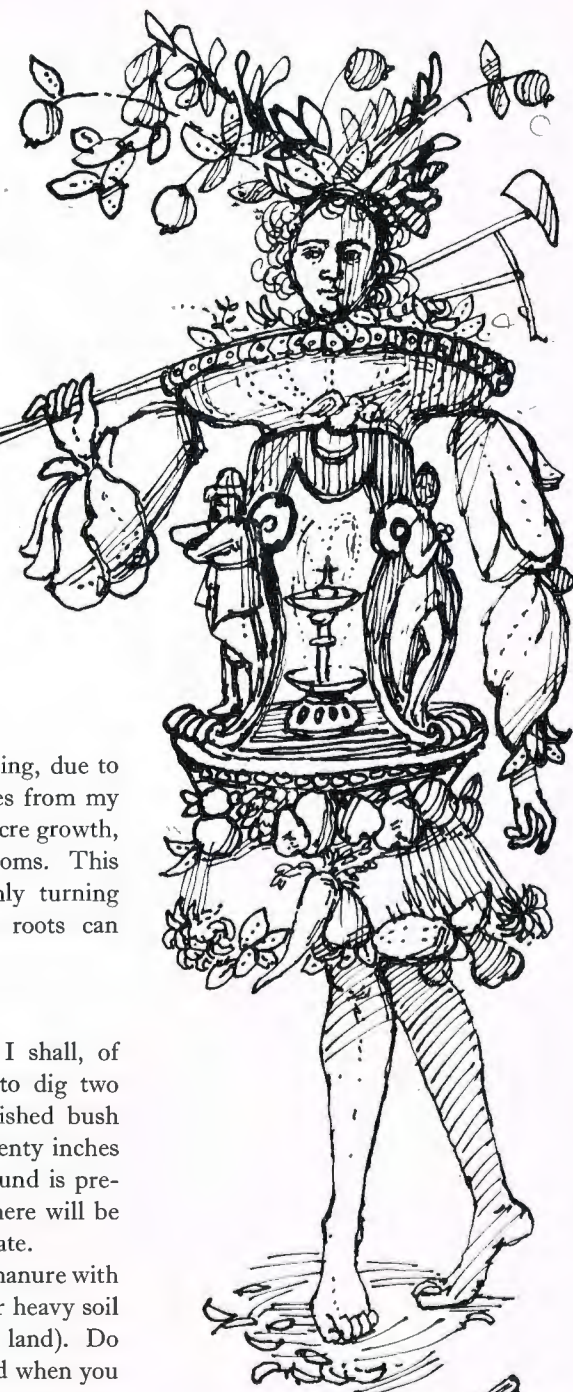
In another part of the garden, where the

ground was not dug before planting, due to the time factor, transplanted trees from my former garden have shown mediocre growth, small foliage and indifferent blooms. This indicates the need for thoroughly turning over the top spit so that the roots can function properly.

**M**y normal practice—which I shall, of course, follow this autumn—is to dig two spits deep. The roots of established bush roses can penetrate to at least twenty inches and as much across. If the ground is prepared a month before planting, there will be sufficient time for it to consolidate.

Work in well-rotted farmyard manure with the second spit (horse manure for heavy soil and cow or pig manure for light land). Do not place it in separate layers, and when you come to the actual planting make certain that there is no contact with the roots. (Compost is an excellent alternative.) Incorporate compost, hop manure or peat with the top spit, plus bonemeal, which supplies phosphates in a slow-acting form. When digging, always keep the surface soil on top and the second spit below, as the bottom spit is usually less fertile than the top.

If you prepare your soil on these lines the roses will have a cool root run, which is one of the first steps towards vigorous, productive trees. You can ensure that the surface soil does not dry out during very hot summer weather by mulching with peat after spring pruning.







CENTRAL AVENUE SEEN FROM THE TOP OF WILTON POWER STATION. *Alongside Central Avenue runs the service trench, cut to carry steam, electricity and chemicals. Service piping is thus unobtrusive and accessible for maintenance. In the background the 'Terylene' plant is under construction, and beyond are Wilton farmlands let to a tenant farmer.*



ANOTHER VIEW OF OLEFINE WORKS, *showing the oil-water separators.*





POLYTHENE WORKS. *In the background is the oil cracker, the source of the ethylene from which polythene is made. Wilton Polythene Works first came into operation three years ago. Since then there have been several extensions.*



WORK IN PROGRESS connecting up the latest storage tank at Wilton's Teesport, where ocean-going tankers bring every year 250,000 tons of refined oil for the cracker.





GAZING ALOFT IN SEARCH OF INSPIRATION IS EQUALLY UNIMPRESSIVE, AND MOST UNLIKELY TO INVOKE A PRACTICAL MEASURE OF CELESTIAL AID.



CLEAR AND CAREFUL ENUNCIATION IS ESSENTIAL.





WHEN ADDRESSING AN ENGLISH AUDIENCE, JOKES GO BEST  
WHEN DELIVERED WITH AN AIR OF DORTENTOUS GLOOM....

# I.C.I. NEWS

## RETIREMENT OF MR. MAX WOOSNAM

MR. Max Woosnam, who retired as Personnel Manager of the Head Office and Regions at the end of last month, had been with I.C.I. for 31 years.

One of the most distinguished athletes of his time, he was educated at Winchester and Trinity College, Cambridge. The first world war broke out before he had finished his studies at Cambridge, and Mr. Woosnam, who was touring Brazil with the Corinthians at the time, returned to England and joined his county Yeomanry regiment, the Montgomeryshire Yeomanry. Later he went overseas with the Royal Welch Fusiliers, returning to Cambridge after the war.

He joined Brunner, Mond & Co. at Northwich as Welfare and Employment Manager in 1923, and soon after the merger was made Alkali Group Labour Manager. In 1929 he was appointed to the Group board as Labour Director and remained in this post for ten years.

In 1940, after just over a year as Personnel Director of General Chemicals Division, he joined the I.C.I. Personnel Director's staff in London. He was appointed Personnel Manager of Head Office and Regions in January 1946.

*Mr. A. J. Quig, a Deputy Chairman of I.C.I., writes:*

While I know it is true, I cannot become accustomed to the fact that Max Woosnam has reached the age of retirement. It may be that we are loath to recognise our own advancing years.

His judgment of human beings, his understanding of them, his capacity to be gentle, yet firm with those who were not "playing the game," and his generosity and kindness to his colleagues amounted to qualities so important that they will be greatly missed. His good fellowship and quick wit endeared him to all with whom he came in contact, either at work or in the many fields of sport in which he took such pleasure.

I had not the privilege of working with him when he was in

the Alkali Division, but even at that time I was one of a party of four golfers who enjoyed glorious, irresponsible, delightful days on the golf course together. The party consisted of our late friend Digby Lawson, Dick Lloyd Roberts, Max Woosnam and myself. The standard of golf was never of a very high order, and Max being the back marker on handicap had to sacrifice many strokes to enable us to make a game of it.

At Winchester and Cambridge he found time in the course of his studies to achieve great distinction in the field of amateur sports and athletics. Just look at these honours: Captain of cricket at Winchester, where he got his colours for golf, rackets, soccer and Winchester football. At Cambridge he had blues for soccer, golf, lawn tennis and real tennis, and he was twelfth man at cricket. Clearly there was just not time enough for him to indulge in all the games at which he might have excelled. He captained Manchester City as an amateur for three years, and enjoyed the almost unique honour, as an amateur, of captaining the professional English International team in 1922. He was a gold

medallist for tennis in the 1920 Olympic Games at Antwerp, won the Doubles Championship at Wimbledon with R. Lycett in 1921, and captained the British Davis Cup team in America that same year. He also won the International Club Doubles Championship at real tennis. These are some of his outstanding achievements in the field of sport. I think we might have a competition to see if anyone can put up the name of any individual whose record surpasses that of Max.

We all most sincerely hope that he will enjoy good health and many years of happy retirement and that his charming wife will enjoy these years with him. For myself, I hope that he will settle in the country—and not too far from my home at that.





## "ENDEAVOUR" PRIZES

For the fifth successive year the Company has sponsored an *Endeavour* essay competition in connection with the annual meeting of the British Association, held this year at Oxford. The competition has the double object of interesting young scientists in the work of the British Association and of encouraging the writing of good English.



Dr. Adrian (third from left) with Endeavour prizewinners at Oxford. Professor Jacobs (centre) represented the first prizewinner, Mr. D. W. Allan.

Competitors had to write a 4000-word essay on one of six selected subjects, details of which were announced at the beginning of the year. There was an age limit of 25 for all competitors, and there was a special class for those under 18.

This year fifty-six entries were received, and their high quality made the judges' task difficult. The first prize (50 guineas) was awarded to D. W. Allan (23) of the University of Toronto, Canada, for an outstandingly good essay—perhaps the best that has been received since the competition was started—on "The Heat of the Earth." He is a graduate of Toronto University and is at present engaged in geophysical research there.

The second prize (25 guineas) was awarded to P. B. Tomlinson (22) for an essay on "The Span of Life." He is at present doing post-graduate research in botany at the University of Leeds.

The third prize (15 guineas) was awarded to C. D. Lustig (21), an undergraduate reading physics at Christ Church, Oxford, for an essay on "Colour Photography."

The two prizes (5 guineas each) in the junior section were awarded to Simon Sheppard (16) of St. Paul's School, London, and Roland Williams (17) of Birkenhead School, Cheshire. Their essays were respectively on "The Upper Atmosphere" and "Colour Photography."

In addition to their cash prizes the reward of the competitors' success included accommodation in Oxford for the week of the British Association meeting.

The prizes were presented to the successful competitors during the Oxford Meeting by Dr. E. D. Adrian, President of the British Association, Master of Trinity College, Cambridge. The winner of the first prize, D. W. Allan, was unable to be present, and it was received on his behalf by the head of his laboratory in Toronto, Professor J. A. Jacobs, who was paying a short visit to Europe.

After the prizegiving the competitors and Professor Jacobs were entertained at a luncheon at which Dr. Adrian and Sir Robert Robinson, President-elect of the British Association, were present.

## ANY ADVANCE ON FIFTY?

Since we published in the August *Magazine* a picture of Windsor Castle taken by a Billingham reader with a twenty-year-old camera, two other readers have sent in pictures which show what they can do with even older cameras.

Miss D. E. Coles, of Sales Control Department, Head Office, occasionally borrows a forty-year-old Brownie No. 2 folding camera from her father. In its long life it has never needed a single repair, and as Miss Coles' photograph of Imperial Chemical House shows, the camera is still up to its job.

Mr. J. L. Mayhook, of General Chemicals Division's Widnes Laboratory, goes one better than this. His Eastman Kodak No. 4 cartridge camera is fifty years old, and with it he took this picture of Chapel House, near Chipping Norton, which was once a coaching inn.



Imperial Chemical House



Chapel House, taken with a fifty-year-old camera

"Owing to the camera's outdated and time-worn appearance," says Mr. Mayhook, "I tend to seek considerable solitude when using it. It is satisfactory in other respects, as I hope the photograph shows."

## HEAD OFFICE

### Prizewinning Squadron

Last month Mr. R. A. Eeles of African Department, a Squadron Leader in the Royal Auxiliary Air Force and commanding officer of No. 615 (County of Surrey) Squadron, received from the Prime Minister the Esher Trophy, awarded annually to the most efficient of the twenty Auxiliary fighter squadrons.

Sir Winston Churchill is Honorary Air Commodore of 615 Squadron. At the ceremony at Biggin Hill when he presented the trophy he told the members of the Squadron: "I am convinced that the faithful and generous services you are rendering to our country by your hard, unremitting and voluntary exertion add not only to the security of our island but are a feature in the moral characteristics of our island life."

Squadron Leader Eeles has commanded 615 Squadron, which flies Meteor VIIIs, since January this year. He has



Sir Winston Churchill presents the Esher Trophy to Squadron Leader Eeles at Biggin Hill

served with the Royal Auxiliary Air Force since 1948, and for three years, while with Leathercloth Division at Hyde, was a member of No. 613 (City of Manchester) Squadron. During the war he served with R.A.F. Training Command.

Another I.C.I. member of the prizewinning squadron is Mr. W. J. Curtis; during the week he is a commissionaire at Imperial Chemical House and at week-ends an administration orderly in the squadron's disciplinary office. He has been with 615 for six years, but R.A.F. life is comparatively new to him. He is an ex-army man, who joined a cavalry regiment at the age of 15 as a trumpeter. As a trooper with the 44th Tank Regiment in the last war he was with the Eighth Army during all its campaigns, from the desert to the invasion of Europe.



Mr. W. J. Curtis

Earlier this year Squadron Leader Eeles took 615 Squadron to Malta for its fortnight's annual training. In previous years they have been to the island of Sylt, Oldenburg and Celle.

## ALKALI DIVISION

### A Natural History Expert

The Brunner Library in Northwich has recently been the setting for a natural history exhibition given by Mr. W. H. Seaton, a Wallerscote Works electrician.

A Fellow of the Royal Microscopical Society and chairman of the Manchester branch of the British Empire Natural



Mr. Seaton (extreme right) demonstrates a microscope to a fellow Wallerscote Works employee

History Society, Mr. Seaton has been interested in natural history for over forty years, and visitors to the exhibition saw just some of his rich collection of specimens. Together with photographs of plant and insect life were 172 of his collection of 500 slides of pollen grains, leaves, and plant stigmas and anthers. Forty-eight lantern slides of pond life were also on view; these were made from sketches that had taken Mr. Seaton five years to draw. The exhibition was staged for one week, and on the two Saturdays Mr. Seaton was present to demonstrate the use of his two microscopes—the newest of which, incidentally, gives a magnification of 5000, using an Italian oil-immersion lens.

Mr. Seaton, a native of Oldham, was encouraged to take up natural history as a hobby during his convalescence from an injury sustained in the Royal Navy in the first world war. Starting from scratch, with no previous knowledge of the subject, he quickly became acknowledged as something of an expert and was appointed microscopist to Oldham Natural History Museum—a spare-time job that he held for some years. He has been a member of the British Empire Natural History Society for nearly twelve years, and is chairman of the Manchester branch this year.

With a hobby that he finds completely absorbing and fascinating Mr. Seaton has, of course, no time for any other spare-time interest. To anyone thinking of taking up the study of natural history Mr. Seaton's advice is to have plenty of patience and to start young: so wide is the field of study that plenty of time is imperative.

## BILLINGHAM DIVISION

### Fitter rescues Drowning Boy

Hundreds of holiday-makers on Morecambe promenade saw Mr. Thomas Ball, a shift fitter on the Gas Plant at Heysham





Mr. T. Ball

jump from a jetty into Morecambe Bay and save an 8-year-old boy from drowning. The incident occurred on Saturday evening, 7th August.

The boy had fallen from the old stone jetty into about 20 ft. of water, and Mr. Ball was walking along the jetty when he saw a crowd of people shouting and pointing into the water.

Commenting about the incident afterwards, he said that no one seemed to be doing anything about it "So," he said, "I stripped to my underclothes

and dived into the sea, although I can only swim enough to save myself."

The boy had sunk to the sea bed, but Mr. Ball brought him to the surface and with the help of another man who jumped in after him with a lifebelt he got the boy to the shore, where he gave artificial respiration.

After being given oxygen treatment by a first aid unit, the boy was taken to hospital and two days later had fully recovered.

Mr. Ball is a former St. John Ambulance Brigade worker.

### Engineering Achievement

More than four years of design work, construction and trial, having as their basis a saving in manual effort and an increase in productivity, have led to the evolution in the Anhydrite Mine at Billingham of an electric rotary drill carriage which is in many ways revolutionary in British mining experience.

Rotary drilling, on the principle of the small drill used for household purposes, is not new for the preparation of shot-holes, but specifications for the carriage called for special requirements.

As completed and first used in the Mine, the carriage was in accordance with this specification and was on caterpillar tracks. Subsequently it was found more satisfactory to mount the drilling equipment on a tyred chassis, and one drill mounting is being converted so that it can operate on a 1 in 4 gradient.

Chassis and drilling equipment weigh about 19 tons, and

each jib is mounted on a turntable and is telescopic. The drill is driven by a totally enclosed electric motor and revolves at about 140 revolutions per minute, penetration being at the rate of about 13 in. per minute for a hole of 1½ in. diameter and up to 10 ft. long.

Design work was carried out by Mr. K. N. Emmott, of the Structural and Mechanical Services Section of Chief Engineer's Department, in conjunction with the Mine engineering staff and Hardy Pick Ltd. of Sheffield.

## DYESTUFFS DIVISION

### Presidency for Division Chairman

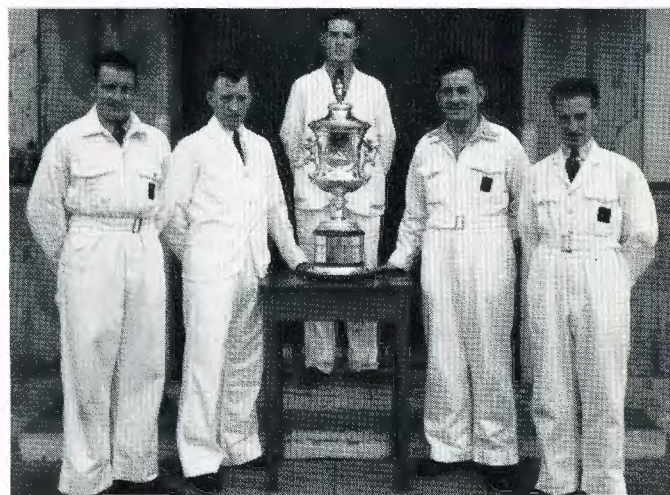
Mr. Clifford Paine, chairman of the Division, has been nominated president-elect of the Society of Dyers and Colourists for 1955.

At the same meeting of the Society's Council Mr. G. S. J. White, Division Technical Service Director, was elected vice-chairman of the Council for 1954-5.

## GENERAL CHEMICALS DIVISION

### Randle Works First Aid Successes

Although Randle Works have had a first aid team which competed in the Division First Aid Competition for the Lady Muspratt Shield for some time, it was only four years ago, in 1951, that the present team was formed under the captaincy of Reg Gartland. These men, three of them from the Safety Services and two from the Maintenance Section, have had a most remarkable run of success in the various competitions for which they have entered.



Randle Works first aid team: D. Belt, R. Gartland (capt.), E. Lunt, H. Hayes, R. Bowman

Their avowed aim is to win the I.C.I. First Aid Trophy, which has so far eluded them, although in 1952, having won the Lady Muspratt Shield, they represented the Division and obtained fourth place in that competition. They have also won the cup presented by the Division Personnel Director, Mr. C. J. P. Bateson, for the Merseyside First Aid Quiz (a competition open to all Division first aid teams in that area) every year since its inception in 1951.

But their greatest achievements have perhaps been in outside competitions, for which they have been enthusiastically entering for the past four years. In 1952 they won the Monsanto Cup and in 1953 the Harrison Shield in the competition at



The new electric rotary drill carriage in Billingham Mine

Leigh. So far 1954 has been their most successful year, for at the British Fire Services Association National Tournament at Southport, which is open to teams from England and Wales, they obtained first place and a magnificent shield in the four-man ambulance team event, second place for the Siebe Gorman Trophy for 'Salvus' work and were fourth in the 'Proto' rescue event—and in addition R. Gartland captured the Henderson Cup and was second in the Gosling Cup competition.

As a climax to the season the team went on August Bank Holiday to Ystradgynlais, South Wales, to compete for the Lady Lewis Cup for first aid at the Royal National Eisteddfod of Wales. There, competing against twenty-five other teams, they beat their nearest rivals by 5½ marks and came away with a magnificent silver cup, 33 in. high, which now stands with numerous other trophies in the works display cabinet.

### Myxomatosis increases 'Cymag' Sales

The plant at Cassel Works which produces 'Cymag' cyanide composition for gassing rabbits usually closes down in the summer after working at full output during the winter. This year the plant has been hard at work all the summer, despite the fact that thousands of rabbits in more than fifteen counties in Britain are dying naturally from myxomatosis.

The unexpected demand for 'Cymag' is apparently because of, rather than in spite of, myxomatosis. A government committee appointed to consider the outbreak of the disease recommended that no steps should be taken to spread it deliberately; but they also pointed out that a small percentage of the rabbits survive the disease and are then immune, as to some extent also are their offspring. The committee recommended that a firm attempt should be made to eliminate all survivors by more orthodox methods—hence the unexpected demand for 'Cymag.'

The R.S.P.C.A. favour the use of 'Cymag' as being the most humane method of killing rabbits, and sales are expected to increase further after July 1958, when a government order forbidding the use of gin traps comes into force.

## METALS DIVISION

### "For He's a Jolly Good Fellow!"

Sung in resounding chorus to the accompaniment of prolonged clapping and cheering these words greeted Mr. J. J. Plimmer, until recently manager of Glasnant Works, when he joined the large crowd assembled to wish him well in retirement.



Mr. J. J. Plimmer

Mr. Plimmer's Company career, though equalled in its 40 years' service by many, reveals several uncommon features. He made his way to his final senior appointment from the floor of the factory, achieving as he went a record probably unique in works council history, having served as a workers' representative, worker's chairman, management representative and chairman of his own council. His service to industry and to the country during the last war were

recognised by the award of the M.B.E., and the universal respect in which he was held in South Wales was emphasised by the presence at his farewell gathering of representatives of the trade unions and the Ministry of Labour.

Mr. Plimmer is succeeded as manager of Glasnant Works by Mr. G. F. Butcher.

### New Division Labour Manager

Following the transfer of Mr. J. A. G. Coates, who is now factory manager at Kirkby, Dr. R. J. Doyle has been appointed Metals Division Labour manager.

Dr. Doyle, an Australian by birth, began his service with the Company in 1934, when he joined the research organisation of Explosives Division. He was transferred to Metals Division in 1940 and for six years was attached to the Ammunition and Chemical Sections of Research Department. After a further period of six years as assistant research manager he was seconded to the personnel organisation in 1952, being appointed manager of Division Work Study Department in March 1953.



Dr. R. J. Doyle

### Decoration for French Resistance Hero

M. Robert Nivromont, chief accountant and a director of Fermeture Eclair, the French subsidiary of Lightning Fasteners Ltd., has been awarded the Légion d'Honneur in recognition of his wartime work for the Resistance. He already holds the Croix de Guerre, awarded him during the first world war.

M. Nivromont was a member of the Vengeance escape line



(Photo: Paris-Normandie)  
M. Nivromont receives the Légion d'Honneur from General Lalande



of the Bernanose Resistance group, and later of the Pat O'Leary line. He supplied false papers to people in trouble with the Germans, sheltered Allied airmen and carried out intelligence work, until he was arrested by the Gestapo, his son Pierre being arrested the same day.

The Gestapo ill-treated him and kept him in handcuffs for four months, during which time M. Nivromont contrived to send out 72 letters to his comrades, putting them on their guard. Then he was sent to the notorious concentration camps of Compiègne and Buchenwald. He endured it all with fortitude, but it seriously impaired his health.

M. Nivromont is most reluctant to speak of his wartime experiences. But on such topics as mountaineering—he is the founder and president of the Rouen branch of the French Alpine Club—or antiques, of which he has a fine collection, he will talk interestingly and amusingly.

### Broughton Closes

August marked an event in Metals Division history which many hundreds of the Division's employees and pensioners noted with regret—the closing of Broughton Works, Salford.

Nearly a century ago the Broughton Copper Co. opened a small factory on the banks of the river Irwell to make copper rollers for the textile industry. Throughout the decades which followed, the fortunes of the firm gradually progressed to the point where the Broughton Works of I.C.I. Metals Division was producing tubes of many varieties for world-wide markets.

In spite of periodic extensions, the time came when Broughton's output threatened once again to outgrow its capacity, and it became clear that drastic measures were necessary. There was no adjacent land available for extensions and no alternative site in the neighbourhood suitable for rebuilding. Faced with this problem, I.C.I. took the only reasonable course and arranged to transfer its Lancashire tube-making interests to an area where they had room to develop—Kirkby, Liverpool, where the largest and most up-to-date of Britain's tube-making plants is now setting out on its own adventurous path to maturity.

So it happened that the very strength and vigour which kept Broughton alive and flourishing for more than ninety years in the end outran its physical endurance. Inevitably the thought has its melancholy aspects, particularly for those staunch Lancastrians who cannot imagine life without "the works." But their sadness may well be tempered with pride. They will remember that three times Broughton has weathered a crisis—ordeals by water when the river Irwell tides of angry water flooded through workshop and warehouse, and ordeal by fire when Hitler's bombs brought roofless ruin overnight. And, in time, they will perhaps see the empty factory for what it really is—a symbol of strength and confidence which uses the past only as a stepping-stone to the future.

### NOBEL DIVISION

#### 'Ardil' used in Hartnell Creations

An evening gown in white satin and specially made blue grosgrain of 'Ardil'/viscose/nylon, and a coat of 'Ardil,' wool and cashmere, both designed by Norman Hartnell, were displayed in the mannequin parade at the Scottish Industries Exhibition in Glasgow last month.



Hartnell's gown in white satin and blue grosgrain, for which the grosgrain was specially made in 'Ardil'/viscose/nylon

'Ardil' was also used in many of the garments in the parade designed by members of the London Model House Group. Simon Massey showed a nylon/'Ardil'/viscose cocktail suit and a wool/'Ardil' tweed suit. Dorville showed a wool/'Ardil' tweed dress, Koupy Models a viscose/'Ardil'/wool coat and Frederick Starke a wool/'Ardil' tweed suit. Susan Small was represented by a wool/'Ardil' jersey dress.

The Exhibition was opened by the Queen Mother. Among the visitors to the I.C.I. stand, which featured 'Ardil,' dyestuffs, pharmaceuticals, commercial explosives and plumbing fittings, was Miss Elizabeth Allan, the television star. She had flown to Kelvin Hall from Renfrew airport in a *Sunday Express* helicopter, accompanied by the Division personnel director, Mr. Leonard Gale. Later she headed the bill at a variety show given in the Kelvin Hall arena by Nobel Division artists. One of the most popular turns was the appearance of the Ardeer Factory cadets pipeband, led by their world champion drum major, Major Eric Allan.

#### St. Rollox' Safety Record

One day in July the manager of St. Rollox Works, Mr. C. I. Nicholson, accepted an illuminated record on vellum which commemorated an unusual achievement: two years' freedom from lost-time accidents in the factory.

The ceremony was watched by the entire works council and members of the St. Rollox safety committee. The vellum was presented by Mr. J. Gardner of Central Safety Section, who conveyed to the factory the compliments of Sir Ewart Smith, I.C.I. Technical Director, to all at St. Rollox.

Accepting the vellum, Mr. Nicholson said that he did so in the name of every employee in the works. This accident-free record could only have been created by the conscious co-operation of everyone. Special tribute, however, must go to Mr. T. Ross, Safety Officer, St. Rollox, and to the members of the Safety Committee for the untiring effort they put in to maintain the spirit of safety-consciousness. St. Rollox was proud to receive this certificate, and, said Mr. Nicholson: "I am sure that with continued effort further honour can be brought to the works and past records broken."

#### Cactus King

A letter addressed recently to "The Amateur Cactus Enthusiast, Stevenston, Ayrshire," was correctly delivered to Mr. Alan Findlay at 42 New Street, Stevenston. Such is Mr. Findlay's fame as a cactus grower.

Mr. Findlay, who works in the Ardeer printing shop, became interested in cacti during a spell with the Royal Navy in the first world war. He saw them growing wild in America and the West Indies and determined one day to grow his own.

Twenty-five years ago he planted his first seeds, and from them he raised about twenty plants. That was the start of a collection which now numbers about 900, including fifty different varieties of the *mammalaria* species alone. In Glasgow recently three of these *mammalaria* won him the London Shield of the National Cactus and Succulent Society.

Mr. Findlay's greenhouse is crowded with tier upon tier of beautiful, whimsical and sometimes grotesque plants. One, called the Old Man of the Andes or *Cephalocereus Senilis*, has



Mr. Findlay with his cacti

a thatch of wispy grey hair growing over its head-like surface. Others give rise to oval additions like rabbits' ears.

The cactus is a native of the humid valleys of the Andes—not, as some people think, of deserts, where it only grows reluctantly. It needs water in the right quantity and at the right time, and protection from frost; this Mr. Findlay provides in winter by firing his greenhouse.

Many of the cacti flower brilliantly, if only for a day. Some will only open their petals at night, and Mr. Findlay, who is reluctant to lose any sleep, has never seen the full beauty of their blooms.

Cacti are long-lived—Mr. Findlay's first plants are twenty-five years old now, and he expects them to survive for many

more years. Some experts say that cacti can reach an age of 200–300 years in good conditions. But that, Mr. Findlay admits, is something he will never be able to prove by personal experience.

### PAINTS DIVISION

#### Queen's Message to Pensioner

A message of congratulation from the Queen was among the telegrams received by Mr. and Mrs. Bob Everitt on their diamond wedding day in July. Mr. Everitt retired some sixteen years ago from the Varnish Department at Slough and now lives at Southall.



Mr. and Mrs. Everitt with the Mayoress of Southall

Southall Community Centre organised a party in honour of Mr. and Mrs. Everitt, and some 160 of their fellow members joined in the celebration. During the tea Mrs. J. Salmon, mayoress of Southall, presented 80-year-old Mrs. Everitt with a bouquet of roses, carnations and lilies of the valley.

#### Back Garden Special

Starting with the chassis and axles of a derelict Morris Minor found on a scrap heap, Mr. Cyril Monk and his father



The Monk Special



Mr. James Monk, both of Division Research Department, Slough, have built themselves a neat little two-seater car. They call it the Monk Special and hope to use it in motoring trials.

The site for building the car was their back garden. To the Morris chassis they added a Ford 8 engine and soon had something which it was possible to drive up and down the garden. Then, at the beginning of last year, they started making the body and collecting equipment such as exhaust system, brakes, wiring and instruments. Mr. Cyril Monk's wife played her part in this. "She has a natural tendency to haunt shops," says Mr. Monk, "and found all the bargains on expeditions which took her from doubtful dives in the East End of London to Gloucestershire."

In order to keep the vehicle as low as possible the Monks cut down an Austin 8 radiator, bearing in mind the necessary cooling area required. Next they fitted a bonnet just clear of the engine and constructed a wooden frame for the body, covering it with millboard and aluminium sheeting. The body was made for two bucket seats, with enough room behind to accommodate luggage or a third passenger for a short trip.

By this summer the car was sufficiently complete for the Monks to register and insure it. Now their only problem is to get it on the road; having built it in the back garden, they must dismantle the back of the garage before they can drive it out.

### I.C.I. (EGYPT) S.A.

#### Alexandria takes the Cup



This picture shows the I.C.I. (Egypt) Alexandria soccer team, victorious in this year's annual match against Cairo for the Chairman's Cup. The score was 4-1.

### I.C.I. (SUDAN) LTD.

#### Mr. J. S. Grundy

Mr. J. S. Grundy, a director and chief accountant of I.C.I. (Sudan) Ltd., died at his home in Stockport on 21st August after a very short illness and only a week after arriving in England on leave.

Mr. Grundy was in his 44th year and had been with I.C.I. (Sudan) since 1950. A chartered accountant by profession, he was educated at The Leys, Cambridge. During the war he served as a pilot in the R.A.F.

"By the death of Jack Grundy," writes Mr. G. Lillywhite, managing director of I.C.I. (Sudan) Ltd., "those of us who were privileged to know him have lost a true friend and I.C.I. a faithful servant. The British community in the Sudan has

been deprived of a kindly and sympathetic personality, quietly serving its best interests and commanding the respect of all Sudanese with whom he came in contact.

"Jack Grundy leaves a widow and two school-age children. His friends mourn with them in their tragic and untimely loss."

### I.C.I. (INDIA) LTD.

#### Golf Trophy won for Third Time

For the third time a golf team from I.C.I. (India) has won the coveted Merchants' Cup. They previously won the cup in 1938 and 1952. Their score of 491 strokes (an average of less than 82 per player) beat the record, set up in 1929 by Burmah-Shell, of 497. Individual scores were: A. Keown 81, G. R. R. Brown 79, N. S. Watson 85, Brian Ritchie 85, H. M. Molesworth 84 and C. W. Perry 77.

The Merchants' Cup golf competition was started in 1906, when seven Calcutta firms and two railway companies decided to hold a six-a-side medal play match. The venue for the contest was then Barrackpore, a park in the country some sixteen miles up the river from Calcutta.

The cup is now competed for by no fewer than sixty-two sides and is played over the Royal Calcutta Golf Club's 6725-yard course. Not only are there thirty-seven different water hazards and a profusion of bunkers, but the competition takes place in July, when the monsoon is at its height, so that chances are high that fairways and greens may be under water and players swamped by a deluge.



The Merchants' Golf Cup

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### OUR NEXT ISSUE

An extraordinarily interesting post-war development is the astonishing ingenuity and delicacy of the instruments that are now available to do jobs previously done by hand. These instruments fall mainly into two categories—measurement and measurement plus control. Originally mechanical, then largely pneumatic, they are today increasingly dependent upon electronics. An account of these new techniques and their place in industry has been written for the November *Magazine* by Mr. A. J. Young, head of Instrument Section at Head Office.

Our two-colour features both owe their inspiration to holidays abroad. Mr. R. J. Fowler of Metals Division writes of how he entered France by jeep and tractor over a snow-covered pass from Andorra still officially closed. And Mr. F. Baranyovits contributes some remarkable colour photographs of a rare butterfly, the Swiss *Apollo*, taken just at the moment when it was changing from the caterpillar to the butterfly stage.

Finally Mrs. Brenda Ellison of Metals Division writes a nostalgic little story of childhood memories entitled "Remembering Saturday."

# Little Dog Lost

## A TRUE STORY

By Marie Bradshaw and Margaret James (General Chemicals Division)

(Illustrated by M. Aitchison)

MY friend and I must possess something admirable or otherwise that attracts animals of all shapes and sizes. Someone once indeed advised us to steer clear of the jungle, and there is, as far as I can see, some sense in that.

For as we pass through the fields, horses thunder towards us and slither to a terrifying stop; geese cackle and gawk in a frenzy at the farmyard gate; cows, after conversing in one corner of their pasturage, bear down upon us like a gold rush; and always we are accompanied by families of bees, midges, bluebottles and wasps. But of all our companions none are so faithful as dogs. From the vicar's wife's pekinese to anybody's mongrel, they hail us as prospective masters although we carry no titbits. All misinterpret our ignorance for encouragement, our disguised thrusts of aversion for pats of love.

Whether it was the season, time or place, that particular afternoon we were free from four-footed followers or the torment of a buzzing halo. In fact, we were remarking a little pessimistically upon this when it happened.

A distant bark, a dark streak across a field, and a canine face with floppy ears appeared from under the hawthorn hedge. Though we had indeed spoken and the devil had certainly appeared, his aspect was less alarming than might have been. To be sure, he was a friendly little fellow. We stroked him, patted him, pulled his ears and regretted we had saved none of our picnic. He wore a collar, but no name-tag was attached. And so, after establishing the fact that he was male, we decided to call him Mr. Ecks.

Mr. Ecks proceeded in a most affectionate doggy fashion to accompany us over the hill, gaily leaving behind the farm from which we supposed he had come. His face was expressive and, as only a spaniel's can be, a little sad, a

little pleading and somewhat devilish. With abandon he romped along at our heels.

Hastily we had converse, calling him "good dog" and stupidly advising "home lad! home!" Mr. Ecks meanwhile stuffed his nose into a clump of weeds, quickly retreating with sneezes and much tossing of ears. Then he paused, tilted his head upwards and waited for the next move, ready to obey at our command—provided it came within his wishes!

My companion looked at me. There were no words needed. I knew the procedure required. We both of us knew it, having done it several times before. The thing is to carry it off with military precision.

We walked quietly till we came to a fork in the road. We proceeded to the left, slackening off speed until Mr. Ecks gained upon us. Then, when he was some ten yards ahead, we neatly and swiftly retraced our steps and darted along the other road, waiting for a little while. Waiting for the inevitable because, although we try this method and have by now established it among the fine arts, it is, not surprisingly, usually ineffective. The inevitable . . . the patter-patter of eager little legs carrying a cheeky canine face.

From then on we tried various methods—pushing the unfortunate one through hawthorn hedges, shutting him in farmyards, trying our best to arrange a courtship between various species of cow and Mr. Ecks. The cows, however, thought him not at all attractive, the hawthorn did not prove to be so prickly to his sleek coat as to our own tender hands, and gates, rather than confining him, gave him the thrill of a commando stunt which he enjoyed to the full.

"Perhaps he isn't English at all," I suggested. My friend at once provided the obvious answer.



"*Va chez toi!*" and "*allez-vous en!*" Then "*Hausen!*" which we hoped was German. And, in desperation, "Now look here, Luke, you'd just bedder be gett'n along to the ranch. They're sure miss'n yu!" But our *ami* was clearly not well educated. He sniffed, barked, wagged his tail, then sat down upon his haunches and looked very sober indeed, rather like Bonaparte at Waterloo.

Our duty lay clearly before us. The next police station would find us willing consultants. Unfortunately our walk to the village police station took us along a busy road infested with cars.

Mr. Ecks' energy knew no bounds. He dodged the traffic both ways, halting cars and shooting-brakes in order to get to the other side. As every wheel missed him by inches, and brakes squeaked always just in time to avoid his death, it became obvious that practice had rendered him perfect in eluding fast traffic. He must, we assumed, have been bred, if not born, in the Place de la Concorde, Paris. The only thing to be done was to put him on a lead.

Surrendering my scarf, I slipped it through his collar and carried bravely on bent at an angle of some 135° while Mr. Ecks tugged with strained neck and lolling tongue.

Eventually we reached a small black and white semi-detached house bearing a smaller black and white notice: "POLICE STATION." We went, dog and all, to the door and rapped efficiently. At last our lovable bundle would be lost to us for ever. We had few regrets; we had become hardened.

The policeman's wife greeted us. We began "We have a dog here . . ." and told how he found us and followed us miles along our way. But she was fat and unsympathetic. She said they had no kennels for lost dogs and that we had better find her husband, who was somewhere in the village. And she slammed the door, one hand on her hip and looking indignant. I recall now thanking her, but for what I cannot imagine.

Still lugging our friend, we finally discovered the village policeman behind the local pub. He was arrogant and unhelpful like his wife, and said that if we'd found the dog, which we didn't oughter a done, it was entirely our own affair. We must suffer the consequences. Annoyed and exasperated, we fed Mr. Ecks on an ice cream and pulled his ears.

"Wonder how old he is?" I said. I knew less than my companion about dogs.

"I don't know," was the reply. "They tell by their teeth, I think."

We opened his mouth and stared into its chasm, but

there was nothing enlightening. I rather think we had expected a little ticket to appear saying two years or six months or whatever it happened to be, like the slot machines at the fairground. But there was no such thing. Only two even rows of gleaming white teeth that snapped together as soon as we let him have his freedom again.

Once more I slipped across the road to the telephone booth and dialled a larger police station. Out poured our sorry tale. The sergeant listened obligingly, now sympathetic, now apologising, and said he was sorry but it was impossible to take action (I suppose he meant the dog); it was out of their area, and why didn't we get in contact with the village policeman here?

It was one vicious circle. We thanked him for the trouble we had caused him and he said "Not at all!" But we imagined him in a chair with his feet on the desk and a mug of tea within arm's reach and him not sorry at all. So once more we sat on the village green and realised that this time we really had drawn blank.

Then we hit on an idea based on the theory learned in childhood that finding's keeping. Why not adopt this little orphan and by some method within the power of man train him to become a thoroughly good housedog, friend and companion? Perhaps even show him at agricultural shows . . . perhaps even win prizes . . . ? So the telephone proved, once more, indispensable.

I telephoned my father, explaining the story, and asked if it would not be too much to ask. His answer bellowed back, and I had to hold my receiver about a foot away before I could hear properly.

"A dog! A wandering half-breed? Preposterous!" we heard him say. Surely the telephone wires shook harder than ever before! Between us we calmed him down to fortissimo. Still he stuck to his answer like a Russian, "NO!" Mr. Ecks wagged his tail gaily and sneered at us as much as to say "See, foiled again!" We were, of course; but we objected to his reminder.

There was but one thing to do, and that was to disown him completely. To let him off the scarf leaving him free to wander at will. This done, we went again on our way. We pretended never to have known him. We disregarded his continual dances among the oncoming traffic. We kidded ourselves that we had forgotten all about him and once again began like normal human beings to discuss books, films, the theatre, wallpaper and holidays. Anything, to be sure, that would divert our thoughts into channels other than dog.

Mr. Ecks, meanwhile, had adopted a Ruth and Naomi act—"Whither thou goest" and all that. It was unfair,



. . . discovered the village policeman behind the local pub

grossly unfair. So when some minutes later we came into conflict with a pampered poodle and we heard "You should keep your dog under control!" shouted loudly in our direction, my friend all but boiled with indignation. Poor Mr. Ecks was called surely every name under the sun save his own. He was all over the road.

We heard the scream of car brakes, the seemingly incessant ringing of bicycle bells, the bellowing horn of an occasional motor cyclist; and always, everywhere, was Mr. Ecks. Our hearts beat faster as the minutes rolled by. Many was the time that we turned away our heads, not daring to see the consequence of the latest sally across the roadway. And still he appeared triumphant and unscathed, unconcernedly flapping his ears and wagging his tail, stopping at times mid-road to see if we were following. "Curse him!" my friend cried desperately. "Curse him for being nothing but a nuisance!" A sound of thunder followed her cry. The weather, with our tempers, had given way.

By now there was not even a footpath along that country road, and we decided to ask if there was a short cut across the fields to our destination. And so we turned in at a cottage to make further enquiries. Mr. Ecks flew round to the back of the house while we waited at the front.

Here, at last, was our chance—here indeed, while he

was lost amid the fields, woods and farmhouses that flanked the main road. And without waiting to make the enquiry we stealthily crept out of the drive and, closing the gate behind us, kept single file along the edge of the busy road. Our hearts were light, free of guilt, and we tramped happily onwards.

Not for long, though. Two minutes later there was a heavy thud, the screech of brakes and the screaming yelp of a puppy in pain. As we turned round to look, a slight black streak was flying through the air. We ran to the ground where he lay awhile, but he tore off into a by-lane, wincing loudly.

I went sick, my companion green. We looked for him everywhere; we gently called his name, but he was nowhere to be found. The driver of the car had said "Wasn't my fault. Ran clean out of that lane under my front wheels, he did. Wasn't my fault, it wasn't!" And, finding the search to be a vain one, he drove off.

It had been no fault of the driver's, certainly; we had made the dog, for a while at least, our responsibility, and we had let him down. The fault lay with us. Or did it? But a few moments back my friend had cursed him. Some may call it hard luck that the dog was hurt. You may call it fate or life, or what you will. I call it witchcraft, for we have never seen him since. One day, perhaps, we shall receive our punishment.





*Morris dancers at Thaxted, Essex*

*Photo by Miss P. Crane (Central Registry)*